

**STABLE ISOTOPE METABOLIC LABELING FOR ANALYSIS OF  
BIOPOLYMERS AND INTERMOLECULAR INTERACTIONS**

**ABSTRACT OF THE DISCLOSURE**

Methods for the determination of the rate of synthesis of biopolymer synthesis and degradation in cells, tissues, or cell-free systems using monomer which has been labeled with a stable isotope are provided. Further, the present invention provides methods for the determination or identification of an unknown biopolymer and for the identification of an unknown cell type, a physiological state of a cell or tissue. Also, the present invention provides a database of descriptors which can be used to define an organism, tissue type, cell type, and the like, and which database can be used in conjunction with other public and private databases to identify or characterize an organism, tissue type, cell type, state of differentiation, or physiologic state of an organism, or tissue or cell sample.